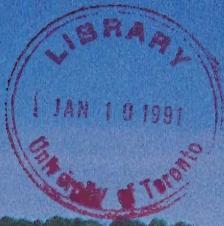
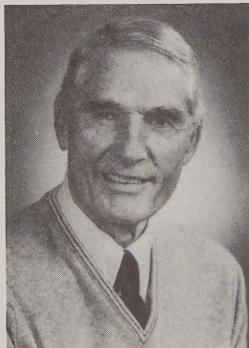


CAZON  
TR 80  
-C75



# CUESTA

The Niagara Escarpment Magazine - La revue de l'Escarpe du Niagara 1990/91



## Chairman's Column

I was surprised to be invited to speak to a Council of Outdoor Educators conference one golden fall weekend along the Niagara Escarpment.

You see, my experience as an outdoor educator was limited to some casual wandering around my St. Vincent Township farm with local Grade Six classes.

My very first lesson was sidetracked into a discussion of my woodpile. Sure, the kids were impressed by the marvellous views of Georgian Bay and the escarpment. They were downright polite when I talked about the famous Ordovician fossils of Workman's Creek. But talk turned to how my woodpile and I fit into the picture.

Where did I get the wood? What if I ran out of trees? Why was it stacked like that? How much did I burn in a year? What would happen if I ran out of wood? It sounded suspiciously like a primary course in resource management.

The kids innocently reminded me that I was a partner in this rural and natural landscape; home to assorted flora and fauna, home to Fay and me and our vigilant watch geese.

In the end, this became the subject of my speech to the outdoor educators—living with the landscape.

I talked about how patterns of development should be the pattern of the land, how buildings should catch the spirit of the place. If we must build, our structures should be graceful and communal. I demonstrated how the Niagara Escarpment Plan frames these ideals.

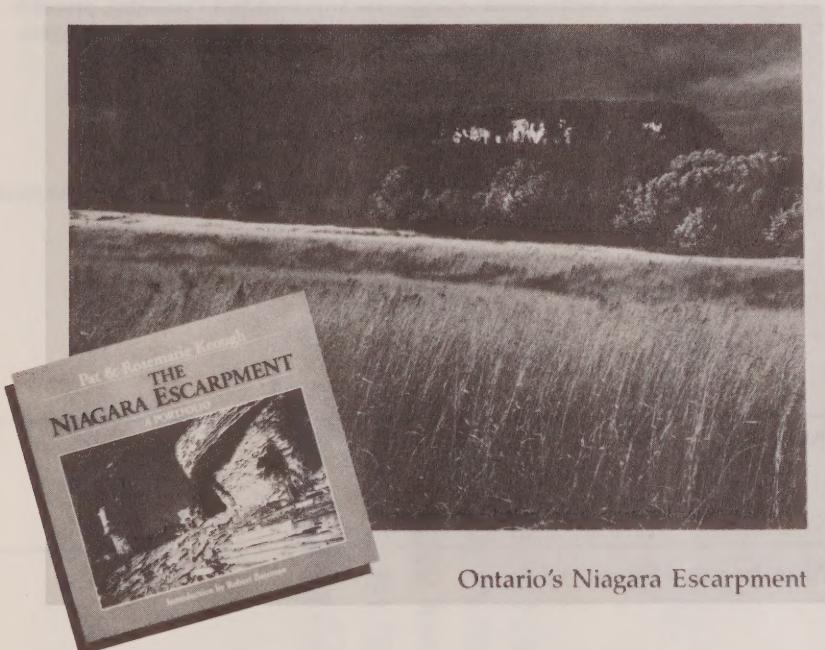
People said it was a persuasive speech. I honestly think any grade six student could have told them the same thing after seriously considering a good woodpile.

G.H.U. (Terk) Bayly  
Chairman  
Niagara Escarpment Commission



*Right:* Robert and Kimberley Hester stack their wood just right.

**Get a one-of-a-kind book.  
Or get a poster.  
You'll help buy land for Ontario's Niagara Escarpment.**



Ontario's Niagara Escarpment

When you buy the Niagara Escarpment: A Portfolio from the Bruce Trail Association, you'll also be buying land to secure a permanent route for the Bruce Trail.

When you buy the new Niagara Escarpment poster "Rattlesnake Point," you'll also be buying land for public parks along the Niagara Escarpment.

### The Book

Bestselling writers and photographers Pat and Rosemarie Keough celebrate the special nature of the Niagara Escarpment in their newest book, The Niagara Escarpment: A Portfolio. The Keough's spent two years along the Escarpment researching and shooting photos for this book. The Niagara Escarpment: A Portfolio, includes an extensive historical section featuring never before published archival photographs. There are some 150 full-colour photographs of the Escarpment as it appears today.

### The Poster

The Keough's have donated an image of Rattlesnake Point for a new 24"x 30" poster. The Escarpment rises ruggedly form a golden field of sunlit hay. A late summer storm looms ominously in the sky above.

(over)

## Buying land

Thanks to the Keough's and a special arrangement with Stoddard Publishing, proceeds from books and posters sold by the Bruce Trail Association will go to buying Niagara Escarpment land for parks and the trail.

### Buy the book. Buy the poster.

You'll have your own piece of the Niagara Escarpment to enjoy at home. And another piece of the Niagara Escarpment will be preserved.

• • • • •

---

Name

---

Number and Street Address

---

Apt. No.

---

City

---

Province

---

Postal Code

Book(s): The Niagara Escarpment : A Portfolio

by Pat and Rosemarie Keough

(Price: \$75 each)

Quantity

Poster(s): "Rattlesnake Point"

by Pat and Rosemarie Keough

(Price: \$10 each)

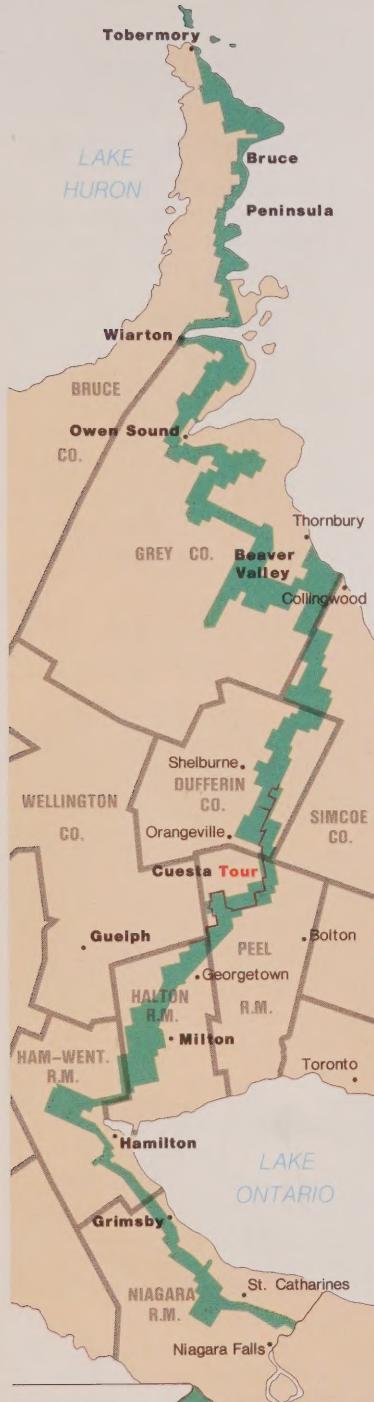
Quantity

Please make cheque or money order payable to Bruce Trail Association. Please use the envelope provided.

Price includes postage and handling

CADON  
TR 80  
-C 75-

# CONTENTS



**CUESTA** Originally a Spanish term meaning flank or slope of a hill, in geological terms means a ridge composed of gently dipping rock strata with a long gradual slope on one side, and a relatively steep scarp on the other.



This stock meets the Environmental Choice Standards.

*Cover: "Mount Nemo, Burlington," by Neil Hester. All photos by NEC staff unless otherwise credited.*

*Editor: Susan Powell.*

*Design & Layout: Bob Pepper & Susan Powell.*

*Cartography & Reprographics: Bob Pepper, John Novasad & Colin Mandy.*



Niagara Escarpment Commission  
232 Guelph Street  
Georgetown, Ontario L7G 4B1  
(416) 877-5191



Cette publication est également disponible en français.

## Features

### Escarpment Outlook.....2

Biosphere Reserve ceremony; Grants for biosphere research; Saving Ontario's rattler; Sale of new book and poster by BTA will help buy land; Land stewardship in the Beaver Valley; Niagara Escarpment Plan Update.

### Cuesta Cling-ons.....5



by Mark Stabb

Exploring the Escarpment's nooks and crannies reveals a world of unique creatures.

### Ancient

### Onenditagui.....11



by Bill Fox

Visit the Bruce Peninsula as it existed 11,000 years ago.

### Escarpment

### Focus.....4



by Willy Waterton

A pro tells you how to photograph the Escarpment and get great results.

# ESCARPMENT OUTLOOK

## Escarment named World Biosphere Reserve

The Escarpment loomed dramatically under a low bank of clouds. The air was chill and damp on April 4. But the gloomy weather was a counterpoint to a ceremony marking the inauguration of Ontario's Niagara Escarpment as a World Biosphere Reserve. Over 250 people from environmental agencies and all levels of government gathered inside the "Gambrel Bicentennial Barn" at the Ontario Agricultural Museum in Milton.

UNESCO Director General Professor Federico Mayor arrived by helicopter with former Premier David Peterson, after flying directly over the escarpment.

Dr. Mayor made the designation official with a certificate from UNESCO, then unveiled a plaque commemorating the event.

Mayor said "The United Nations and the Canadian Government are committed to protecting the Niagara Escarpment. We want to keep alive the sustainable development program so we can protect our environment

for future generations."

The designation recognizes the unique natural features and ecological importance of the area in which land use is regulated under the Niagara Escarpment Plan.

A biosphere reserve has a core of relatively undisturbed land together with nearby "zones of cooperation", where the land is being used to meet human needs.

The Niagara Escarpment is Ontario's second Biosphere Reserve and Canada's sixth. Long Point is the other reserve in Ontario.

The Niagara Escarpment was nominated as a reserve in 1989 and the announcement declaring Ontario's Niagara Escarpment as a World Biosphere Reserve came in February 1990 from UNESCO in Paris, France.

There are 283 formally designated Biosphere Reserves in 72 countries. Among these are the Galapagos Islands (Ecuador), Serengeti National Park (Tanzania), and the Florida Everglades (United States). ■

## Grants favour biosphere research



The Ontario Heritage Foundation has revised its research grants to give preference to projects that relate to the Escarpment as a UNESCO biosphere reserve.

Approximately \$100,000 of the Niagara Escarpment Trust Fund is allocated to support research projects each year.

Under the revised guidelines, projects considered for grants may include comparative studies of natural areas and areas of human intervention and use, and conservation of ecosystems and biota of particular interest.

Also included are demonstrations of ecologically sustainable land and resource uses, quantitative or qualitative monitoring of ecological change, and balanced land-use planning.

The next deadline for applications is December 31, 1990 for review in March 1991. ■

For more information, write:

Roger Martin, Coordinator,  
Niagara Escarpment Program,  
Second Floor, 77 Bloor Street West,  
Toronto, Ontario,  
M7A 2R9.



Rick Chard

Left: Prof. Federico Mayor, Director General of UNESCO, speaks to crowd at the biosphere reserve inauguration ceremony.

Right: Doug Sweiger, Parks Canada, holds Massasaga rattler on snake hook.

## ESCARPMENT OUTLOOK

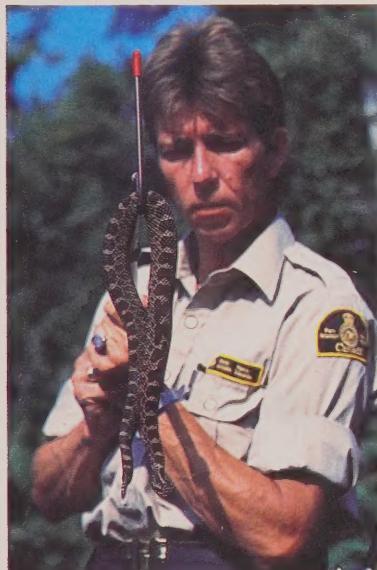
### A fair shake for rattlers

Massasauga rattlesnakes in Bruce Peninsula National Park were wired with radio transmitters last summer in a study that could save Ontario's last rattler.

University of Carleton consultant Frances Berry and park staff use a directional antenna and radio receiver to track snake movement and temperature. The data will be used to identify and preserve existing habitats and create new ones.

The slow moving, timid Massasauga once lived in many areas of the province.

Today, its range is limited to the Georgian Bay area and, in smaller numbers in the Lake St. Clair/Windsor and Wainfleet areas.



Willy Waterton

This is because human fear, persecution, land development and habitat destruction has pushed Ontario's only venomous snake to the brink of extinction.

Berry and her team captured 22 snakes and implanted 11 with microtransmitters. Tracking was done through the summer and fall of 1989 and in the spring of 1990, when the

snakes woke from winter hibernation. The transmitters are removed at the end of the study.

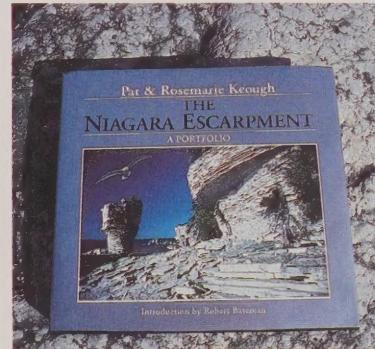
Brian Hutchinson, Assistant Resource Management Specialist with Environment Canada, Parks Canada Service has great respect for Ontario's only venomous snake. "They deserve a spot in the world just as much as you or I do. And you don't have to be afraid of them," he says.

Two people in Eastern Canada have died from a Massasauga rattler bite. The last recorded "death by rattlesnake bite" was in 1962. Neither person received proper treatment. □

### Book, poster sales will help buy land

A major book on the Niagara Escarpment and a new poster featuring Rattlesnake Point will raise much needed funds for escarpment parks and the Bruce Trail.

Proceeds from a special limited sale



Ontario's Niagara Escarpment

of the book and poster will go to the Niagara Escarpment Trust Fund to acquire land for the Niagara Escarpment parks system and to secure a permanent route for the Bruce Trail.

Authors Pat and Rosemarie Keough spent two years researching and photographing *The Niagara Escarpment: A Portfolio*.

The large coffee-table book includes 150 colour photos of the escarpment and an extensive historical section with many previously unpublished archival shots.

Naturalist artist Robert Bateman writes the introduction to the book, the Keough's third. Their acclaimed portfolios on the Ottawa Valley and the Nahanni River Valley are best sellers.

The Keough's donated an exquisite image of Rattlesnake Point, Milton, to the Ontario Heritage Foundation for a new fund-raising poster.

The book and poster are available through the Bruce Trail Association, Box 857, Hamilton, Ontario, L8N 3N9. Books are \$75 each; posters are \$10. Make your cheque or money order payable to the Bruce Trail Association. □

## ESCARPMENT OUTLOOK

Peter Mitchell is an educator, world traveller and owner of fifty acres of land in Kimberley, Ontario in the Beaver Valley. His property contains a variety of "eco-niches," says Peter, that provide habitat and food to many of birds, and mammals.

For twelve years he improved his property by planting trees; a good start, he says, but what next?

"I discovered there wasn't much information around on active land stewardship and enhancement. As a landowner I would love to meet other landowners and find out what they're doing with their land. We can learn a lot from each other," says Mitchell. With this in mind and the support of the Beaver Valley Heritage Society, of which he is a member, Peter approached the Ontario Heritage Foun-

### Promoting a natural choice in the Beaver Valley

dation with a proposal to start the Beaver Valley Stewardship Education Program.

Mitchell explains, "The real spirit of this program is to determine if there are other people out there like me who thoroughly enjoy their property and want to do more."

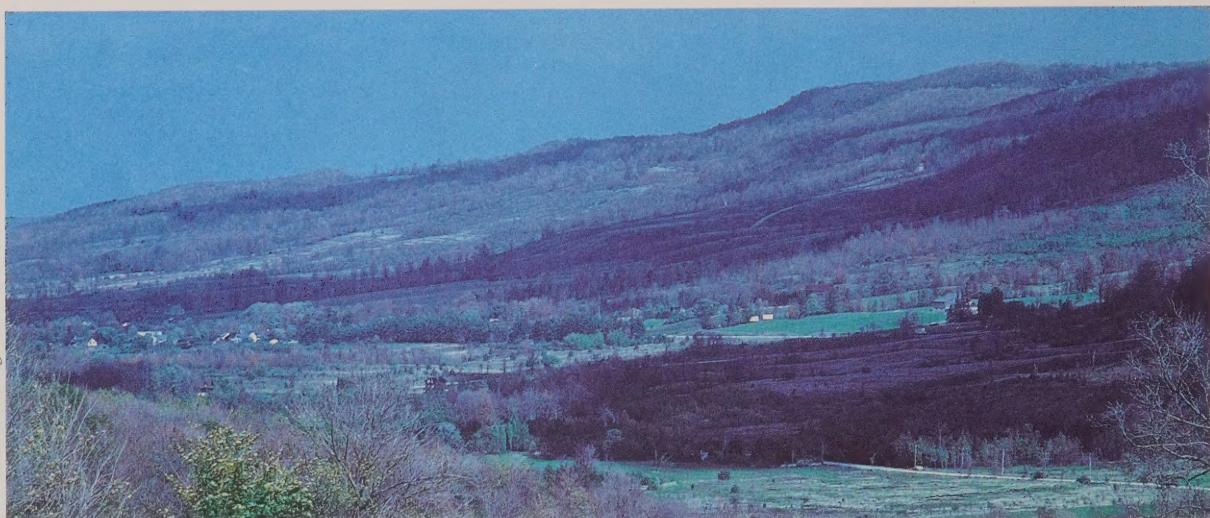
The Beaver Valley runs from Thornbury on the shore of Georgian Bay to

Flesherton. The advance of glaciers moving up the valley created the steep sided, broad bottomed Beaver Valley. Twenty percent of Ontario's apple crop grows here because of the moderating effect of the Niagara Escarpment and Georgian Bay.

In the months to come Mitchell will contact landowners within an area bounded by Eugenia, Heathcote, Duncan Lake and Rocklyn.

He will gather information on what types of programs landowners want, what programs exist, and compile new ideas. Seminars and workshops are scheduled for the fall and community activities promoting effective stewardship are part of a plan to give landowners additional help and information to protect and enhance their valley properties. ☐

Richard A. Armstrong



*futur deep .*

### Niagara Escarpment Plan Update

• Ontario's Ministry of the Environment (MOE) was given responsibility for the Niagara Escarpment Plan and Commission in the provincial budget.

The move, from the Ministry of Municipal Affairs to MOE, "recognizes the unique environmental significance of the escarpment area," the budget stated.

• The Niagara Escarpment Commission (NEC) received a record high 1446 development permit applications in 1989/90, 135 more than the previous year. The NEC's Thornbury office, covering Bruce, Grey and Simcoe counties, processed 603 applications. The rest were split between the Georgetown and Grimsby offices, 428 and 415 respectively.

• Lot creation policies, recreational ponds and quarries are three major subjects up for discussion in the current **Niagara Escarpment Plan Five-year Review**. A number of other topics have been flagged, and the Niagara Escarpment Commission expects a broad range of public and municipal input throughout the review. General opinion is that the Plan works well. ☐

# Cuesta Cling-ons

What animal would you nominate to best symbolize the wildlife habitat protected by the Niagara Escarpment? A White-tailed deer? A Ruffed Grouse or a Red-tailed Hawk? Chances are you would not pick a scuttling insect that is dwarfed by a paper clip.

Yet the escarpment is crawling with such candidates. Hidden in the seeps and wet rock faces of the escarpment's cliffs is a distinctive wildlife community in an unlikely habitat. The natural history of these microcosms of "madicolous" habitat is still largely a mystery.

Madicolous (from the latin verb madere: to trickle or ooze) habitats are rock faces or other substrates coated with dripping water. Water is often sandwiched between the layers of rock of the Niagara Escarpment.

Brad Sinclair, a postgraduate ento-



Brad Sinclair

form when this groundwater emerges at rock exposures such as cliffs and roadcuts. These trickling waters, often no more than the width of a Canadian dollar, can harbour an unassuming but unique wildlife community. The escarpment is one of the few places they are found in North America.

Basic food chains form when algae and diatoms (a form of photosynthetic plankton) colonize the water



Top: Seepage spring-Rock Chapel/Borer's Falls Ravine (Dundas). Right: Adult female (dry specimen) of *Thaumalea americana*. Left: Microcaddisfly, *Ochrotricha Confusa* restricted to madicolous habitats.

film and tiny chunks of detritus (decomposed plant and animal matter) become available to water-loving insects.

Some plant-eating larvae graze on the minute greenery, while others are scuttling scavengers that feed on the organic detritus. Predators such as

beetles and parasitic wasps complete the chain. These are but a few of the links in the food web that change subtly as the waters flow over rock, mud or vegetation.

Dr. Steve Marshall of the Department of Environmental Biology of the University of Guelph has a passion for this inconspicuous world. "The biology of these insects is totally bizarre", he says. "Take *Thaumalea americana*, for example, one of the insects most dependent on madicolous habitats. It is very flat, it has its mouthparts on the ground, its back in the air and its spiracles (air holes) projecting out of the water. And if you've ever tried to capture one you know that they are superbly modified to shoot like a snake across the film of water."

Brad Sinclair, a postgraduate ento-



Brad Sinclair

logy student of Dr. Marshall's, recently completed a survey of madicolous fauna along the Niagara Escarpment. Their pioneering study in 1985 and 1986 took them to a spring near Owen Sound's Inglis Falls, to the "Jolley" roadcut carved out of the escarpment in Hamilton, and to two seepage springs near Dundas.

Brad plucked larvae directly from the rocks using soft forceps, or flushed them into a collecting basin by splash-

ing water on the rock face. Adult insects found clinging to the undersides of rocks adjacent to the habitat were sucked into collection chambers using mouth tubes. The task of separating and identifying the specimens then began.

Flies, mites and beetles were among more than seventy arthropod species discovered on this insect safari.

The life cycle of some species, like Thaumalea Americana, revolves around madicolous habitats, with egg, larval, pupal, and adult stages all found in the trickling water. Other species drop into the life zone only

ters of the animals life history.

Brad is modest about his discoveries, saying that the creatures will be passed on to other taxonomists for complete classification. He doubts that they'll name one after him; new insect discoveries are not uncommon even in Canada. Recent estimates indicate that Canada is inhabited by close to 60,000 insect species, but that roughly 25,000 still await scientific description.

"The general public doesn't realize that so many insect species have yet to be described in this country," says Brad. "With close to 50% of all insect

avoid pollutants.

"Toxic chemicals seeping out of the cliffs along the New York side of the Niagara Gorge have likely wiped out the arthropod fauna there," says Brad. He points out that these creatures could in time be monitored as indicators of ground water quality.

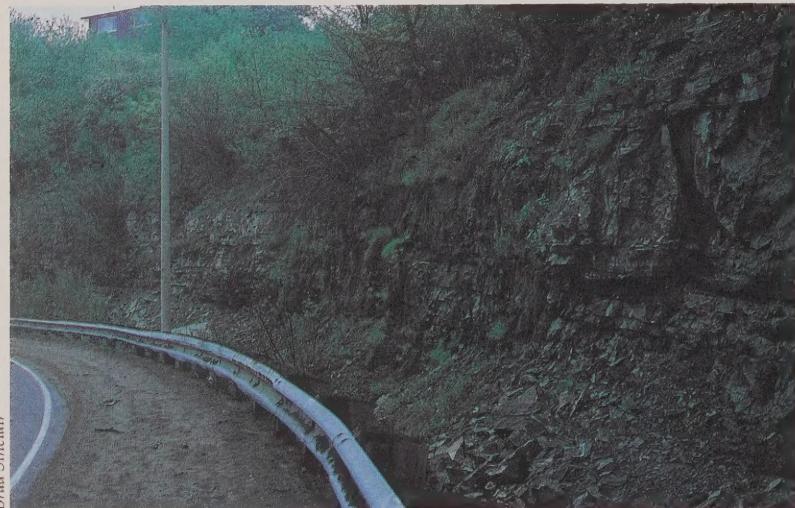
Regardless of any utilitarian benefits, these "cuesta-cling-ons" are special beings in their own right, says Dr. Marshall. "We have precious few habitats that support totally unique insect communities; madicolous habitats fall into this category. The populations are very restricted."

Madicolous habitats and the animals they support are unique escarpment phenomena. As the Niagara Escarpment's most indicative cliffside creatures, this inconspicuous wildlife community is worthy of our attention and concern.

The curiosity and efforts of Dr. Marshall and Brad Sinclair have shown us that there are still frontiers in biology in our own backyard. As a result of this study, at least 3 new life forms have been discovered on the Niagara Escarpment, and several other life stages have been identified.

Many madicolous habitats await further study. This research shows us that exploring the nooks and crannies of the Niagara Escarpment can pay off. ☀

Brad Sinclair



Hamilton-Jolley Cut: road cut below Sam Lawrence Park,

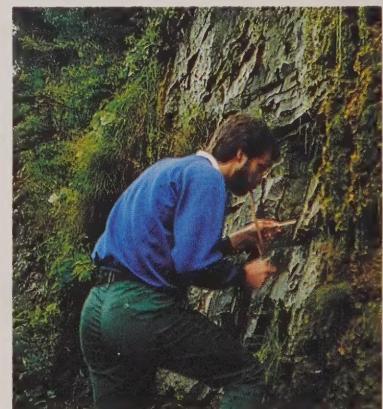
briefly for feeding and breeding. Exploratory studies in biology often turn up surprises, but in this case the rewards came as undescribed life forms. They are not instant discoveries. "Immature larval stages often cannot be distinguished from one another," says Brad Sinclair, "since species are described from adult specimens, you have to raise the larvae to adult stage before you can identify what you've found."

Using these techniques, Brad distinguished for the first time three new fly species. He also uncovered the immature stages of 14 other species of flies. Larvae are to flies what caterpillars are to butterflies, so knowing these immature forms gives insight into hitherto unexplained chap-

species still unknown to science, there may be threats to the habitats of species that we don't even know exist."

Protection of the Niagara Escarpment has meant the conservation of some of these madicolous habitats. Ironically, madicolous fauna have sometimes benefitted from human alterations to the escarpment. Roadcuts for highway construction along the escarpment create seepage springs that are often colonized by insects; however, they are not immune to disturbance.

Changes to groundwater flow, changes to water levels, drying up of seeps or pollution of groundwater, affects these communities. Insects avoid dry times in dormant or drought-resistant life stages, but it is hard to



Above: Brad Sinclair "splash sampling" for larval insects.

Dr. Steve Marshall

Mark Stabb is a Biologist with the Ministry of Natural Resources at the Algonquin Regional office.

# *Exploring the Escarpment*

Head into the "Heart of the High Country" - Terra Cotta to Violet Hill

## Tour Directions

### *Terra Cotta to Belfountain*

Our starting point is at the entrance to Terra Cotta Conservation Area, located on Winston Churchill Boulevard just 2 km north of the Village of Terra Cotta.

Owned by the Credit Valley Conservation Authority, the Terra Cotta Conservation Area is one of more than 100 parks within the Niagara Escarpment Parks System. This multi-use area offers cross-country ski trails, hiking trails, fishing, camping and picnicking.

Although our tour is not taking us through the Village of Terra Cotta, it's worth mentioning some of the highlights in the village. The renowned Terra Cotta Inn, located on the banks of the Credit River, provides a delightful tea hour. Art galleries and craft stores are within a minute's walk.

From the entrance of the Conservation area turn left and go north on Winston Churchill Blvd. You pass the Peel Board of Education's Jack Smythe Outdoor Education Centre on the west side of the road. Continue north until you reach Olde Base Line, approx. 3 km. Turn right and go east until you reach the Cheltenham Badlands. Approx. 4.5 km. Pull over and park on the wide road shoulder on the south side of the road. Step out of your car to view this sculptural and unique erosion site. The rock is typical escarpment Queenston Shale.

Turn around and head west on Olde Base Line to the 3rd Line West, approx. .7 km (south side is Creditview Road). At the stop sign turn right and proceed north to the 5th Sideroad, approx. 3.4 km. This quiet stretch of road captures the true feeling of rural, Ontario landscape.



Richard A. Armstrong

Forks of the Credit Provincial Park, Caledon.

At the 5th Sideroad, turn left and go west until you come to Mississauga Road - 4th Line West, approx. 1.5 km. Turn right at the stop sign and go north to the Village of Belfountain, approx. 3.2 km.

Distance travelled: 16.3 km. approx. Originally called "Tubtown", the Village of Belfountain has many scenic and cultural qualities. The Belfountain General Store is worth a visit. The selection of baked goods and other treats will add flavour to your trip through the high country.

Continue through the Village, north on Forks of the Credit Road (Forks Street). Turn right and follow the signs to the entrance of the Belfountain Conservation Area. Approx. .2 km.

Belfountain Conservation Area is a tiny gem of a park. Purchased by the Credit Valley Conservation Authority in 1959, this area offers first rate escarpment scenery all seasons of the year. The swing bridge, the early 19th century stoneworks and the original bell fountain, makes for an ideal picnic setting.

### *Belfountain C.A. to the High Country*

As you leave the conservation area turn right and go east to the 4th Line West. Turn left and proceed north to Cataract Road, approx. 2.9 km. This winding road takes you past the Caledon Ski Club.

Turn right onto Cataract Road and head east to the Forks of the Credit Provincial Park (no parking - footpath only), located on the right, approx. 1.5 km. Parking is permitted at 2nd Line West entrance however walking distance to the Cataract Falls is approx. 2 km. Distance travelled: approx. 4.6 km.

The footpath will take you to the Cataract Falls where the Credit River plunges 20 metres. This is the site of John Deagle's Electrical Generating Station, which began operation in 1899. This station supplied power to customers as far away as Orangeville, Erin and Alton. The station closed in 1944.

*electric*

# CUESTA TOUR

Go north on the 3rd Line West.

Drive slowly past the Village of Cata-tract's first hotel, directly on your left (north side). Known today as the Cata-tract Inn, this 120 year old struc-

Scottish settlers named Caledon Hills after the ancient name of their home.

act's first hotel, directly on your left (north side). Known today as the Gataract Inn, this 120 year old structure is now a fine restaurant.

Continue north on the 3rd Line West until you reach Highway #24, approx. 1 km. Turn right and proceed east to 2nd Line West. Approx .4 km. Turn right and go south.

Continuing south on the 2nd Line

Continue south on the 2nd Line West for approx. 8.8 km. You'll cross over the Forks of the Credit Road and a view of the escarpment will be on your right. The 2nd Line West turns east onto the 5th sideroad. At the stop sign turn left and continue east to Highway # 10 (Hurontario Street).

Distance travelled: approx. 13.1 km

## *Into the "Heart of the High Country"*

Crossing Highway #10 , proceed east to 2nd Line East, approx. 2.8 km. Turn left and proceed north to

The 10th Sideroad, approx. 3 km. As you climb the Caledon Hills to reach the 10th Sideroad, you see Devil's Pulpit to the west. The upper cliff of the towering escarpment feature overhangs the lower cliff to suggest a pulpit.

land—Caledonia. At the 10th Sideroad turn right and go east to the 4th Line East, approx. 3 km. As you travel along the 10th Sideroad take in the spectacular views of Toronto to the south and the surrounding Caledon Hills. You are now approx. 1400 ft. (430 meters) above sea level. Throughout this area, the escarpment lies under several hundred feet of glacial till which creates the rolling and rocky

**Historical note** - At the 3rd Line East, south of the 10th Sideroad is the site of the Great Horseshoe Train Wreck (1907). Seven passengers were killed when the "Exhibition Special" bound for Toronto jumped its tracks on a wide curve down the Escarpment.

Turn left at the stop sign and go north, approx. .7 km. to St. Andrews Presbyterian Church and cemetery. Located on the east side of the road. Constructed in 1853, the church is made of cut stone. Turn around - go south on the 4th Line East to the stop sign at the 10th Side road. Turn left and proceed east to the 5th Line East, approx. 1.4 km. Turn left once again and go north to the 15th Side road, approx. 3 km. You are now within the Metropolitan Toronto and Region Conservation Authority's swa-  
ment. torched

Mono Cliffs Provincial Park  
Mono Cliffs Outdoor Education Centre

A small map showing the location of Mono Cliffs Inn. The inn is marked with a red dot and labeled "Mono Cliffs Inn". A red line connects this point to "Mono centre". A road is shown leading towards the inn, with "Sisteroad" written along it. A yellow shaded area is visible to the right of the road. A scale bar indicates distances up to 8 km.

The road is the  
inshoe Train  
ngers were  
on Special"  
its tracks  
the Escarp-  
sign and go  
to St. Andrews  
l cemetery/  
of the road.  
e church is  
round - go  
East to the  
road. Turn  
the 5th Line  
rn left once  
e 15th Sid-  
ou are now  
onto and  
nitory swa-



Photo by: N.E.C



*Photo by: Richard A. Armstrong*



Photo by: S. Powell



Photo by: N.E.C.



*Photo by S. Powell*



Top of Escarpment, Caledon - 4th Line East



At the 15th Sideroad turn right and proceed east to Airport Road. Go north on Airport Road to the entrance of Glen Haffy Conservation Area located on the east side of the road. Distance travelled: approx. 18.6 km

At Glen Haffy C.A. you can fish, hike, picnic and cross-country ski. The Metropolitan Toronto and Region Conservation Authority manages this area.

#### *Onward to Mono*

Continue north on Airport Road (crossing Highway #9) to the 5th Sideroad, approx. 5.5 km. The Township of Mono is home to the Taoist Tai Chi Society of Canada and the Cistercian Monks. At the 5th Sideroad, turn left and proceed west to

the 4th Line (EHS), approx. 2.7 km.

Go north on the 4th Line (EHS) until you reach the Hockley Road, approx. 3.5 km. Constructed in the late 1800's, this road is Dufferin County's best known scenic drive. It runs the full length of the Nottawasaga Valley.

**Historical note** - In May of 1985, a tornado ripped through part of Mono. Damage to the valley is still quite visible.

Turn left and proceed west to the 3rd Line (EHS), approx. 1.5 km.

The Hockley Valley Resort is just up the road. The escarpment is a climatic boundary. Winter temperatures above it are much cooler. This gives the Brampton/Mississauga skier assurance that the drizzle at home proba-

bly means snow on Hockley's ski runs and other downhill ski resorts. The Glen Cross pottery shop is also worth a visit.

Turn right at the 3rd Line (EHS) and proceed north to County Road # 8 (Mono Centre Road), approx. 5.8 km. The vista of the Hockley Valley is tremendous. The valley was formed initially by ancient rivers and widened by glaciers.

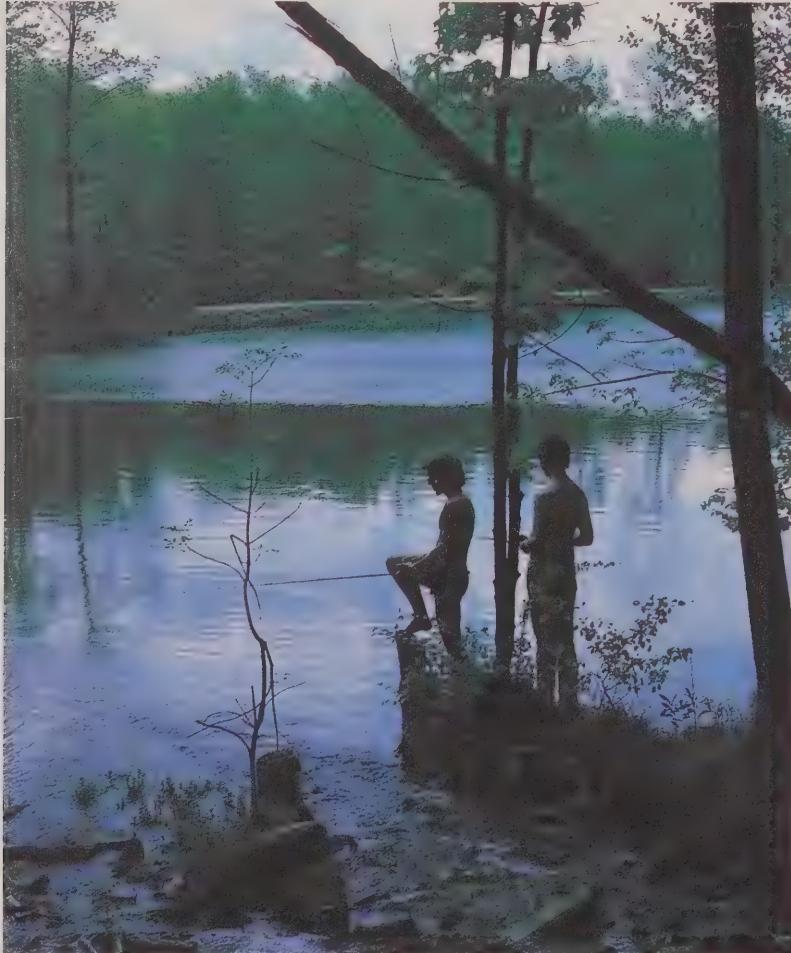
Turn left onto County Road #8 (Mono Centre Road) and head west to Mono Centre. On the north side of the road is the Mono Cliffs Provincial Park entrance, approx. 1 km. Distance travelled: approx. 20 km. Mono Cliffs is a very special area for hiking on the Bruce Trail. The views of the escarpment cliffs from the Mono Cliffs outlier are stunning. Within this Hamlet of Mono Centre, is the quaint Mono Cliffs Inn. Note: you can proceed west and north approx. 2.5 km. to an additional entrance and parking area of the Mono Cliffs Provincial Park. North York Board of Education's Outdoor Education Centre is also along the way.

From Mono Centre travel east on County Road # 8. Follow County Road # 8 as it turns and goes north. Proceed north on County Road #8 to 3rd Line (EHS), approx. 2 km. Take the 3rd Line (EHS) north to the 25th Sideroad, approx. 3.4 km. Turn left and go west to 2nd Line (EHS), approx. 1.4 km. Turn right and proceed north to 30th Sideroad, approx. 3.3 km. Turn right and head east to the 3rd Line (EHS), approx. 1.3 km. Turn left on 3rd Line (EHS) and proceed north, 1 km. to Violet Hill (Highway # 89).

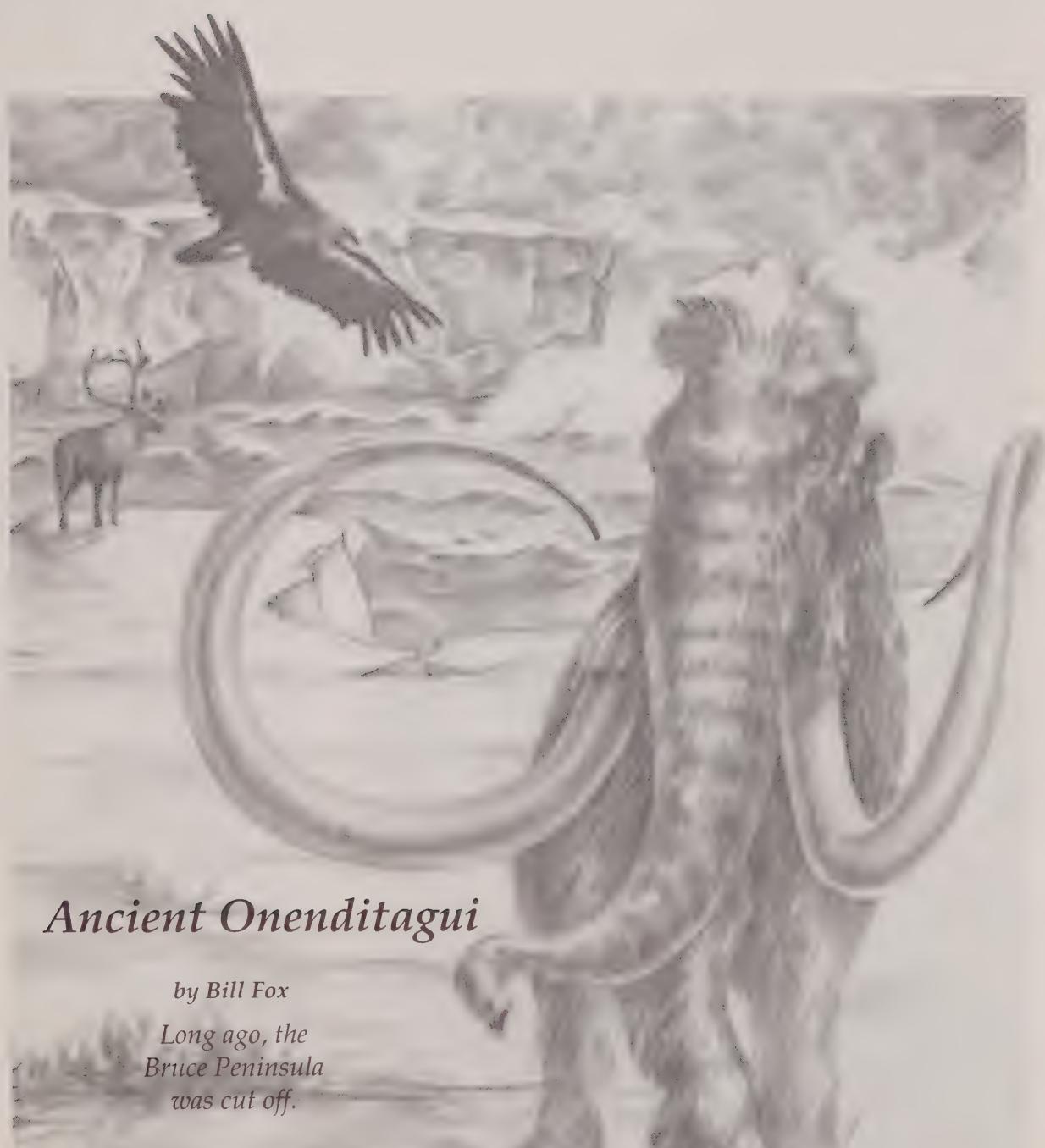
Upon leaving Mono Cliffs Provincial Park — did you know that you have been travelling along the Violet Hill discharge channel?

The discharge channel carried meltwaters from receding glaciers southward some 13,000 years ago. Many features of the channel are visible looking south from Violet Hill. Distance travelled: approx. 12.4 km. Total distance travelled: approx. 85 km. So ends our tour of the

"Heart of the High Country." ☺



Wolf Lake, Terra Cotta Conservation Area



## *Ancient Onenditagui*

by Bill Fox

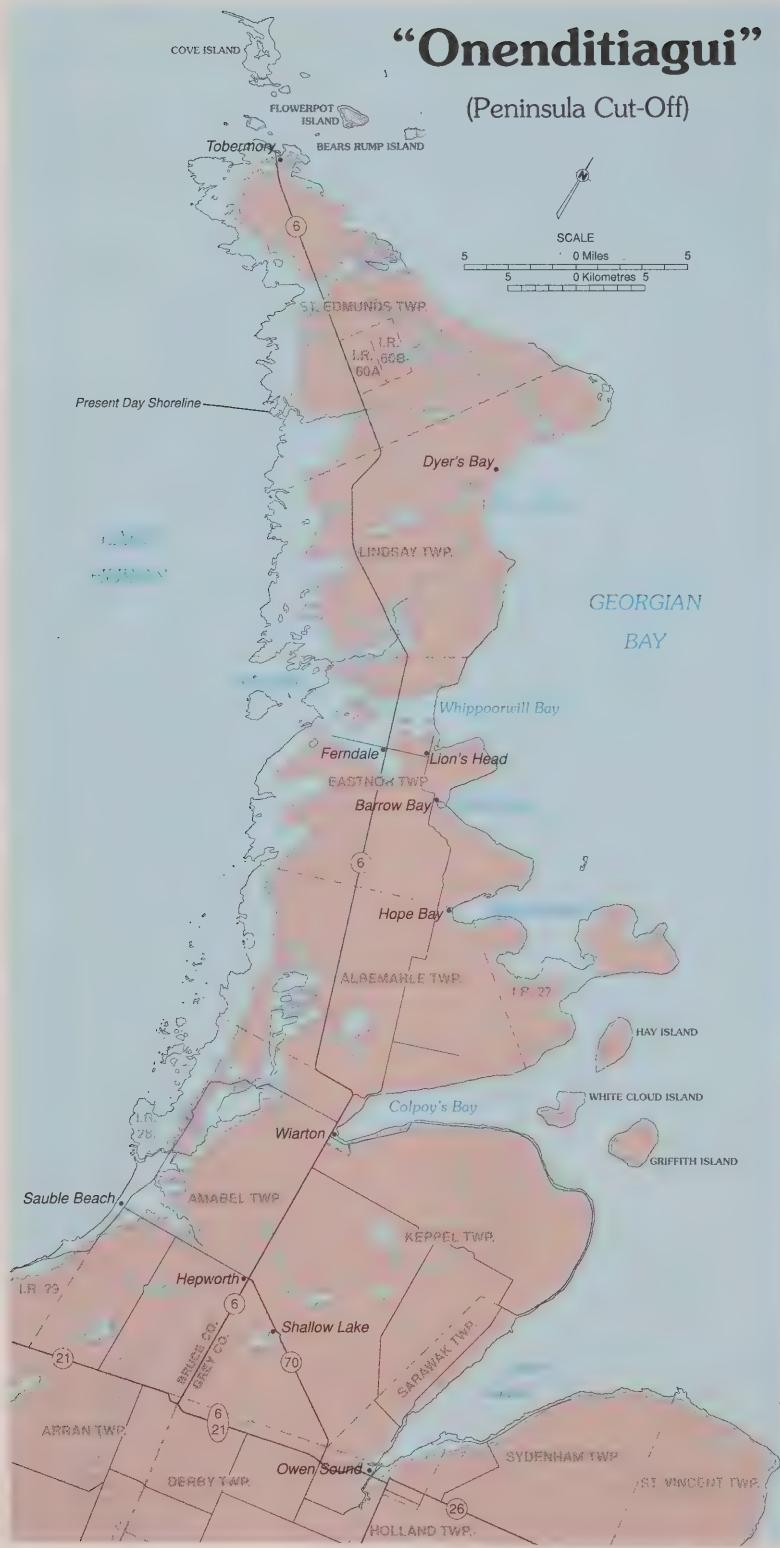
*Long ago, the  
Bruce Peninsula  
was cut off.*

Anyone who has seen a fall storm on Georgian Bay or Lake Huron knows the awesome power of these waters. But imagine the vista north from Skinners Bluff 11 thousand years ago when the thundering water was 60 meters higher than today.

The Bruce Peninsula as we know it barely existed. The only recognizable feature was a scatter of wind-swept

limestone islands, dwindling in size northward along what is now the east side of the peninsula. The waves of enormous Lake Algonquin pounded the escarpment face for centuries, creating features such as Greig's Caves and the sprawling cobble and boulder storm beaches familiar on the Bruce. Paleo Indians were the first explorers to the Bruce, then a vast

tundra across elevated areas with valleys of open spruce parkland. Temperatures were cooler back then, perfect for caribou and grizzly bear, species typically found in our northern barrens. Other creatures unfamiliar to modern day Bruce Trail enthusiasts were the towering mammoth, smaller mastodon, and the California condor. The mammoth pre-



ferred open tundra environment; mastodon liked to browse on spruce boughs.

It's unlikely that these elephants were food for the Paleo Indians. Evidence from archaeological excavations suggests that they were hunting bands that followed migrating caribou herds to the Blue Mountains in the warm season.

Native flint-knappers quarried their white chert ('flint'- found in a limestone formation of the Niagara Escarpment in Grey and Bruce Counties), and travelled southwest to winter in Lambton County.

We have yet to find the distinctive lanceheads left by these pioneering peoples, but evidence from the nearby Grey County suggests that it is only a matter of time before a Paleo Indian fluted point is found in the County of Bruce.

One thousand years later a catastrophic event occurred. A new great lakes outlet emerged and the lakes drained to a level 100 metres lower than present. A gently sloping plain extended many kilometres west in the Lake Huron Basin.

Where once there was water, pine forest flourished and succeeded the spruce trees. Dry land between the Bruce Peninsula and Manitoulin Island was broken only by a narrow strait connecting Lakes Stanley and Hough.

All of the warm season, shoreline campsites occupied by succeeding Early Archaic Native groups now lie under the waters of Georgian Bay and Lake Huron. Only the occasional interior winter camp remains accessible for study. Small bands of Native people continued to hunt, fish and

**On page 13:** An artist's conception of an Algonquin landscape more than 10,000 years ago. (drawing by Judie Shore)

*Left: A view of the Bruce Peninsula 5,000 years ago, during the Lake Nipissing high water phase of Lake Huron and Georgian Bay. The geography is based on a lake level approximately 14 meters above the present.*

The flesh tone colour on the map represents the historical Bruce Peninsula shoreline and the dark grey line shows the present day Bruce Peninsula shoreline. (cartography by Colin Mandy, NEC)

gather wild plant foods across the peninsula for centuries.

In fact, for thousands of years, little changed in their lifestyle and seasonal quest for food.

Five thousand years later the water levels of the great lakes rose once again to a maximum of 14 meters above the present level. The pine and beech/maple forests and fens of the Huron shoreline were flooded.

The geography of the peninsula was dramatically different compared to today. In the past, a shallow strait turned the northern Bruce Peninsula into an island. There were reedy shorelines, similar to present day Sky Lake, which formed the end of a long embayment stretching north from the mouth of the Sauble River.

Stone axes, adzes, and gouges - ancient woodworking tools, have been recovered from campsites along the former strait near Lion's Head.

Elsewhere, among sand dunes east of the present Huron shore, evidence of a campsite at the Nipissing stage lake level has been found on what was once a sand and gravel point at the mouth of a creek. At this camp, spring spawning pike, walleye and sucker were probably caught, cleaned and preserved over a smokey fire.

As centuries passed the lake waters dropped again to their present levels, creating the step-like sand or cobble strandlines so common to the peninsula. The traditional round of economic activity continued with families dispersing to interior winter hunting grounds and congregating once more each spring at creek and river mouths to harvest spawning fish.

Summer and fall were spent near the lake shore hunting, spearing and netting fish and collecting berries. Archaeological evidence from the Tobermory vicinity show that over a thousand years ago summer travel occurred from as far west as Lake Michigan.

When the white man, Champlain, arrived in 1615, it was the Cheveux Releves ("Standing Hairs") or Odawa (Ottawa) that he met as he first entered Georgian Bay.



*Anonymous map drawn c. 1639-57. Note the exaggerated size of Colpoys Bay; a significant geographic feature due to the important portage across the peninsula. (Map copy courtesy of Dr. C. Heidenreich, York University, Dept. of Geography)*



Neal Ferris



Sil Fox

Champlain's 1616 map shows the "Standing Hairs" group to the west of the Petun Indian tribe. This is confirmed in a later anonymous French map entitled "Description du Pais des Hurons." On a 1657 map attributed to Bressani, the Colpoys Bay to Boat Lake portage is described in further detail, with a Huron name for the Bruce Peninsula - Onenditiagui ("Peninsula Cut-off").

Archaeological survey and excavations over the past decade are paying off, as several major seventeenth century Odawa camps have been discovered and investigated on the peninsula.

The cliffs, forests and waters of the Bruce continue to provide glimpses of Native life long past, and this rich heritage stays with us to this day among the Nawash Peoples of Cape Croker and Saugeen. ☀

*Bill Fox is a Senior Archaeologist with the Ministry of Culture and Communication and is responsible for policy and program development.*

**Middle:** An Odawa clay vessel dating to the French period, discovered recently on the Bruce Peninsula

*Left: An Archaic stone axe.*



# Escarpmment Focus

by Willy Waterton

*Running from Queenston in the South to Tobermory in the north, the limestone cliffs of the 725 km Niagara Escarpment provide the photographer with a wide variety of scenery and subjects to capture on film.*

Over the years I have found that a key component of photographing the escarpment is finding the direction of the light and where it will fall. I do this through the use of a compass.

The escarpment appears to run roughly north-south but its many glens, valleys, and bays face different directions. By using the compass I can determine where the sun will rise and set over the escarpment and then position myself to catch the first or last rays of sun lighting the rock face.

The task can be both frustrating and challenging. Frustrating, because during much of the day the highly reflective limestone cliffs create the same exposure problems for the photographer that snow does. The grey / white stone reflects a great deal of light and has a tendency to cause over exposure if you rely on your camera meter. This can result in washed out photos. To eliminate this problem use the exposure guide supplied with your film, and ignore your camera's meter readings.

To take a correct reflected light exposure use an 18% grey card. This test sheet or card can be purchased at any camera store. To cover yourself, expose a number of frames one half stop and one full stop above and below the meter's suggested exposure. This is called "bracketing".

High contrast can be another problem. For example, the light coloured stone contrasting with the dark green of the cedars and vegetation that grow

on the brow and at the foot of the cliffs. To lower the contrast, photograph on cloudy days. This will give you an even light. Or photograph either early or late in the day, during what is often referred to as the golden or magic light periods. These are my preferred shooting times, not only for the light, but because the escarpment seems shrouded in mystery during these low light times.

While many fine images of the escarpment can be taken close to roads or within easy access, you will want to challenge yourself and see if a better image lies just around the next outcrop or halfway through the concession where no road runs.

A majority of the escarpment is accessible by the Bruce Trail but hiking with cameras and equipment can be irritating if you're not properly prepared.

To carry my equipment while hiking, I use large day pack with a zippered front panel. The equipment is

fitted into upholstery foam which has been custom cut to accept each piece of equipment. Recently, I have started using a fanny pack in addition to a regular day-pack. This gives me more room in the pack for equipment, food or clothing.

My standard equipment consists of two Nikon FM 2 camera bodies with motor-drives. Why do I burden myself with the extra weight of the motor-drives? Because the motor-drive allows me to make multiple slides of each image quickly and cheaply; resulting in superior original duplicates.

I carry a variety of lenses. My collection includes Nikkor 16mm, 20mm, 28 mm, 55 mm micro, 105 mm micro, 135 mm, 300 mm lens and 1.4 Nikon teleconverter. On a hike or ski without specific subjects to photograph, I would carry the 20 mm, 28 mm, 55 mm micro and the 135 mm and probably leave the motor drives at home. Most of the film I shoot is Kodachrome 64 ASA. I have used Fujichrome 50 ASA and found the results to be excellent. On occasion, when forced by low light, I have used Kodachrome 200 ASA with acceptable results. All



6

my black and white work is done on the old journalist's standby, Kodak Tri-X 400 ASA.

When I use a tripod, (which is probably not as often as I should), I use a heavy duty model with a ball head on it. More often I use a monopod; while not as sturdy as a tripod, it is a lot lighter to carry and gives you the extra edge on sharpness.

Other than protective filters on all lenses, I use a professional Corkin polarizing system, which allows me to use the same polarizing filter on all my lenses. The polarizer emphasizes the greens and blues of the Georgian Bay waters, along the Bruce Peninsula.

For most of my life, I have lived within six kilometres of the escarpment, and took the landform for granted. When hired by various organizations to photograph the escarpment and its people, I had to look at the formation as if I was seeing the escarpment for the first time.

Looking at the escarpment through a camera viewfinder, has forced me to re-discover what a visually exotic landform exists in Southern Ontario.

**"Once you start to photograph the different aspects of the Escarpment ecosystem, you soon realize there is a lifetime of entertainment and education in documenting Ontario's limestone spine."**



7

1



2



5

## # 1. Evening at Skinners Bluff

Nikon FM 2 camera, with a 300 mm lens plus a 1.4 teleconverter, giving a focal length of 420 mm.

Shot on Kodachrome 64 ASA film. Meter reading was taken off middle section of photo and bracketed.

This photo was taken from the roadside on an August evening swim and picnic.

A tripod was an absolute necessity to enable the photo to be taken at slow shutter speed.

## # 2. Maple Leaves

Nikon FM 2, 300 mm lens, Kodachrome 64 ASA. I took a meter reading off an 18%

grey card, bracketing.

By keeping the elements of the photos simple, you can create a stronger and more graphic image.

In this case, I used a 300 mm on a monopod to isolate the front-lit maple leaves against the shadow cast by another tree.

## # 3. Poplar Leaf

Nikon FM2, 55 micro lens, Kodachrome 64 ASA. Meter reading taken off an 18% grey card and bracketed.

The only thing that makes this photo different from hundreds of other leaf photos are the raindrops left after a fall shower, bathed in light on the forest floor.

## # 4. Jack Vaughn, Cove Island Lightkeeper

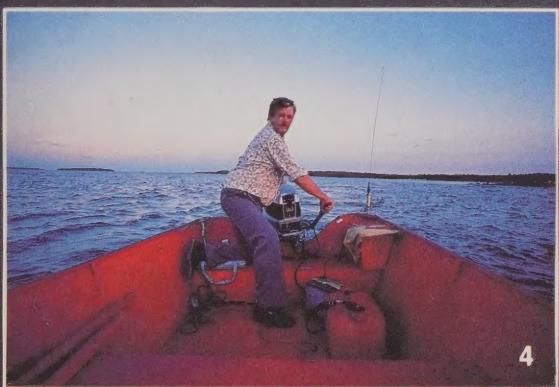
Nikon FM 2, 20 mm lens, Kodachrome 64 ASA. Meter reading was taken off red hull interior, and bracketed.

Jack Vaughn is a lightkeeper at Cove Island and it is his job to keep the light which warns the ships of the jagged, underwater reefs.

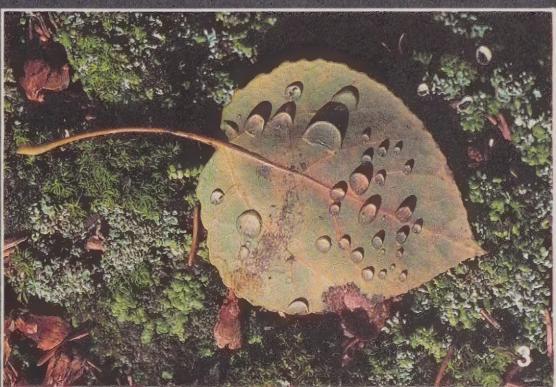
## # 5. Ice Cave - The Grotto at Bruce Peninsula National Park

Nikon FM 2, 20 mm, Kodachrome 64 ASA. Exposure was taken using an 18% grey card before entering the cave.

The image is framed by the roof of the



4



3

grotto, emphasizing the enclosed space. The figures give a sense of scale and balance to the composition.

#### # 6. Mayfly on a Seneca Snake Root

Nikon FM 2, 105 mm micro lens, Kodachrome 64 ASA. Meter reading taken from an 18% grey card, compensating for backlight.

The backlight helped to make the plant and insect stand out.

The exposure was calculated using the grey card for the front-lit subject and the lens was opened one to two stops to compensate for the back light.

#### # 7. Eugenia Falls

Nikon FM 2, 20 mm lens, Kodachrome 64 ASA. Exposure was taken off Northern sky and bracketed.

The plume of white cascading over the brow of the escarpment and disappearing into the lush valley below reminds me of images from *The Lost World* by Sir Arthur Conan Doyle, 1912.

#### # 8. Cove Island Lighthouse - sunset

Nikon FM 2, 28 mm lens, Kodachrome 64 ASA. Exposure was determined by meter reading from left hand sky and bracketing the exposure.

The photo was taken from a rocky

shoal just big enough to set up a tripod.

Scouting the location with a compass beforehand was essential to plan this photograph. ■

*Willy Waterton is a full time photo journalist at the Sun Times, a Southam Daily in Owen Sound. He has worked for the paper for fourteen years. He lives in the shadow of the Escarpment at Kemble, just north of Owen Sound.*

*Editor's Note:* The products mentioned in this article are the choice of the photographer and do not constitute an endorsement by Cuesta.

